What is claimed is:

1. A method of treating a subject with a disease characterized by the production of mucin, comprising administering to the subject an effective amount of a composition comprising at least one compound that decreases mucin synthesis or levels in the subject.

2. A method of claim 1, wherein the mucin synthesis is chloride channel dependent.

3. A method of claim 2, wherein the compound decreases mucin synthesis in cells that express an ICACC chloride channel.

4. A method of claim 1, wherein the compound is selected from a group consisting of analogues and derivatives of anthranilic acid, analogues and derivatives of 2-amino-nicotinic acid, analogues and derivatives of 2-amino-phenylacetic acid, bendroflumethiazide, analogues and derivatives of aminoquinolines, salts thereof and prodrugs thereof.

5. A method of claim 4, wherein the compound is selected from the group consisting of talniflumate, flufenamic acid, niflumic acid, mefenamic acid, bendroflumethiazide, N-(3-fluorobenzyl)-3-aminoquinoline, salts thereof, derivatives thereof and prodrugs thereof.

6. A method of claim 5, wherein the composition comprises talniflumate, a talniflumate derivative, a salt thereof or a prodrug thereof.

7. A method of claim 4, wherein the composition is administered by inhalation.

8. A method of claim 7, wherein the composition is in the form of a liquid.

9. A method of claim 7, wherein the composition is in the form of a powder.

10. A method of claim 8, wherein the liquid is aerosolized.

11. A method of claim 1, wherein the composition further comprises at least one expectorant, mucolytic agent, antibiotic or decongestant agent.

12. A method of claim 11, wherein the expectorant is guaifenesin.

13. A method of claim 1, wherein the composition further comprises at least one stabilizing agent, absorption-enhancing agent or flavoring agent.

14. A method of claim 13, wherein the stabilizing agent is cyclodextran.

15. A method of claim 13, wherein the absorption-enhancing agent is chitosan.

16. A method of any one of claims 1-15, wherein the disease is selected from the group consisting of a chronic obstructive pulmonary disease (COPD), an inflammatory lung disease, cystic fibrosis and an acute or chronic infectious disease.

17. A method of claim 16, wherein the composition is administered via inhalation.

18. A method of claim 17, wherein the composition is administered via inhalation to the lungs or nasal passages.

19. A method of claim 16, wherein the COPD is selected from the group consisting of emphysema, chronic bronchitis and asthma.

20. A therapeutic composition formulated for inhalation delivery to the lungs, comprising an amount effective to decrease mucin production or levels of at least one compound selected from the group consisting of talniflumate, flufenamic acid, niflumic acid, mefenamic acid, N-(3-fluorobenzyl)-3-aminoquinoline, salts thereof, derivates thereof and prodrugs thereof.

21. A therapeutic composition of claim 20, wherein the composition comprises talniflumate, a talniflumate derivative, a salt thereof or a prodrug thereof.

22. A therapeutic composition of claim 20, wherein the composition is in the form of a liquid.

23. A therapeutic composition of claim 20, wherein the composition is in the form of a powder.

24. A therapeutic composition of claim 20, wherein the composition further comprises at least one expectorant, mucolytic agent, antibiotic or decongestant agent.

25. A therapeutic composition of claim 24, wherein the expectorant is guaifenesin.

26. A therapeutic composition of claim 20, wherein the composition further comprises at least one stabilizing agent, absorption-enhancing agent or flavoring agent.

27. A therapeutic composition of claim 26, wherein the stabilizing agent is cyclodextran.

28. A therapeutic composition of claim 26, wherein the absorption-enhancing agent is chitosan.

29. An inhalation device comprising a therapeutic composition of any one of claims 20-28.

30. A method of claim 5, wherein the compound is talniflumate.

31. A method of claim 5, wherein the compound is selected from a group consisting of N-(3-fluorobenzyl)-3-aminoquinoline, salts thereof, derivatives thereof and prodrugs thereof.

32. A method of 4, wherein the compound is administered orally.

33. A method of claim 30, wherein the composition is administered orally.

34. A method of treating a subject with a disease characterized by the production of mucin, comprising administering to the subject an effective amount of a composition comprising at least one compound that decreases mucin synthesis or levels in the subject and inhibits a cyclooxygenase enzyme.

35. A method of claim 34, wherein the compound specifically inhibits cylooxygenase 2.

36. A method according to claim 34, wherein the compound is selected from a group consisting of analogues and derivatives of anthranilic acid, analogues and derivatives of 2-amino-nicotinic acid, analogues and derivatives of 2-amino-phenylacetic acid, bendroflumethiazide, analogues and derivatives of aminoquinolines, salts thereof and prodrugs thereof.

37. A method of claim 34, wherein the compound is selected from the group consisting of talniflumate, flufenamic acid, niflumic acid, mefenamic acid, bendroflumethiazide, N-(3-fluorobenzyl)-3-aminoquinoline, salts thereof, derivatives thereof and prodrugs thereof.

38. A method of claim 34, wherein the composition comprises talniflumate, a talniflumate derivative, a salt thereof or a prodrug thereof.

39. A method of claim 34, wherein the composition comprises N-(3-fluorobenzyl)-3-aminoquinoline, salts thereof, derivatives thereof and prodrugs thereof.

40. A method of claim 34, wherein the composition is formulated for inhalation delivery to the lung.

41. A method of claim 34, wherein the composition is formulated for oral delivery.